

We claim:-

1. A multilayer magnetic recording medium which comprises, on a nonmagnetic substrate, at least one upper binder-containing magnetic recording layer which has a thickness of less than  $0.5\text{ }\mu\text{m}$  and contains finely divided magnetic pigment having a coercive force  $H_c$  of  $100 - 250\text{ kA/m}$ , and at least one lower binder-containing layer which contains an isotropic magnetically soft pigment which is selected from  $\gamma\text{-Fe}_2\text{O}_3$ ,  $\text{Fe}_3\text{O}_4$  or a solid solution of these components and has a mean crystallite size of less than  $10\text{ nm}$ .
2. A magnetic recording medium as claimed in claim 1, wherein the coercive force  $H_c$  of the pigment in the upper layer is from  $130$  to  $220\text{ kA/m}$ .
3. A magnetic recording medium as claimed in claim 1, wherein the magnetic pigment in the upper layer is a metal pigment or metal alloy pigment.
4. A magnetic recording medium as claimed in claim 1, wherein the magnetic pigment in the upper layer is a hexagonal ferrite pigment or a Co-modified  $\gamma\text{-Fe}_2\text{O}_3$ , Co-modified  $\text{Fe}_3\text{O}_4$  or a solid solution of these components.
5. A magnetic recording medium as claimed in claim 1, wherein the isotropic magnetically soft pigment in the lower layer has a mean crystallite size of less than  $6\text{ nm}$ .
6. A magnetic recording medium as claimed in claim 1, wherein the lower layer has a coercive force  $H_c$  of less than  $0.7\text{ kA/m}$ .

7. A magnetic recording medium as claimed in claim 1, wherein the lower layer has a coercive force  $H_c$  of less than 0.3 kA/m.
8. A magnetic recording medium as claimed in claim 1, wherein the amount of the magnetically soft pigment in the lower layer is from 25 to 85% by weight, based on the weight of all pigments in the lower layer.
9. A magnetic recording medium as claimed in claim 1, wherein the amount of the magnetically soft pigment in the lower layer is from 35 to 78% by weight, based on the weight of all pigments in the lower layer.
10. A magnetic recording medium as claimed in claim 1, wherein the magnetically soft pigment in the lower layer has been surface-treated with an aluminum compound or a silicon compound or a mixture of the two compounds.
11. A magnetic recording medium as claimed in claim 1, wherein the magnetically soft pigment in the lower layer is spherical or amorphous.
12. A magnetic recording medium as claimed in claim 1, wherein the lower layer contains at least one nonmagnetic pigment in addition to the magnetically soft pigment.
13. A magnetic recording medium as claimed in claim 12, wherein the nonmagnetic pigment is acicular, having a mean longitudinal axis of from 5 to 200 nm, or spherical or amorphous, having a mean particle size of from 5 to 180 nm.
14. A magnetic recording medium as claimed in claim 12, wherein the nonmagnetic pigment is  $\alpha\text{-Fe}_2\text{O}_3$ .

15. A magnetic recording medium as claimed in claim 12, wherein the nonmagnetic pigment is carbon black.
16. A magnetic recording medium as claimed in claim 12, wherein the nonmagnetic pigment is a mixture of carbon black and  $\alpha\text{-Fe}_2\text{O}_3$ .
17. A process for the production of a multilayer magnetic recording medium which comprises, on a nonmagnetic substrate, at least one upper binder-containing magnetic recording layer which has a thickness of less than  $0.5\ \mu\text{m}$  and contains a finely divided magnetic pigment having a coercive force  $H_c$  of  $100 - 250\ \text{kA/m}$ , and at least one lower binder-containing layer which contains an isotropic magnetically soft pigment which is selected from  $\gamma\text{-Fe}_2\text{O}_3$ ,  $\text{Fe}_3\text{O}_4$  or a solid solution of these components and has a mean crystallite size of less than  $10\ \text{nm}$ , comprising,
- mixing, kneading and dispersing an isotropic magnetically soft pigment which is selected from  $\gamma\text{-Fe}_2\text{O}_3$ ,  $\text{Fe}_3\text{O}_4$  and a solid solution of these components and has a mean crystallite size of less than  $10\ \text{nm}$  with a binder, a solvent and further additives and applying the dispersion to a nonmagnetic substrate, a lower layer forming;
  - mixing, kneading and dispersing a finely divided magnetic pigment having a coercive force  $H_c$  of  $100 - 250\ \text{kA/m}$  with a binder, a solvent and further additives and applying the dispersion onto the lower layer, an upper magnetic recording layer forming;
  - orienting the moist layers in a magnetic field;
  - drying the moist layers until the upper layer reaches a thickness of less than  $0.5\ \mu\text{m}$ ; and
  - subsequently calendering and separating.

18. A magnetic recording medium containing an upper layer, and a lower layer, said lower layer including magnetically soft pigment which is selected from  $\gamma\text{-Fe}_2\text{O}_3$ ,  $\text{Fe}_3\text{O}_4$  and a solid solution of these components and has a mean crystallite size of less than 10 nm.
19. The magnetic recording medium as claimed in claim 18, wherein the magnetically soft pigment has a mean crystallite size of less than 6 nm as a pigment in a lower layer of a magnetic recording medium.
20. A process for the production of a multilayer magnetic recording medium which comprises, on a nonmagnetic substrate, at least one upper binder-containing magnetic recording layer which has a thickness of less than 0.5  $\mu\text{m}$  and contains a finely divided magnetic pigment having a coercive force  $H_c$  of 100 – 250 kA/m, and at least one lower binder-containing layer which contains an isotropic magnetically soft pigment which is selected from  $\gamma\text{-Fe}_2\text{O}_3$ ,  $\text{Fe}_3\text{O}_4$  or a solid solution of these components and has a mean crystallite size of less than 10 nm, which comprises adding as the isotropic magnetically soft pigment in the lower layer magnetically soft pigment at least one of  $\gamma\text{-Fe}_2\text{O}_3$ ,  $\text{Fe}_3\text{O}_4$  and a solid solution of these components and has a mean crystallite size of less than 10 nm.
21. A magnetic tape, magnetic card or floppy disk comprising a multilayer magnetic recording medium which comprises, on a nonmagnetic substrate, at least one upper binder-containing magnetic recording layer which has a thickness of less than 0.5  $\mu\text{m}$  and contains a finely divided magnetic pigment having a coercive force  $H_c$  of 100 – 250 kA/m, and at least one lower binder-containing layer which contains an isotropic magnetically soft pigment which is selected from  $\gamma\text{-Fe}_2\text{O}_3$ ,  $\text{Fe}_3\text{O}_4$  or a solid solution of these components and has a mean crystallite size of less than 10 nm.